

operated from a roomy, flat-bottomed skiff propelled by oars, and I do most of my work alone, during the early morning hours while the water is quiet. The dredgings are carefully worked over while resting between "pulls," and when I am ready to return home the results of my day's work are, so to speak, "all in a nutshell."

In from 2 to 5 fathoms on mud bottom I find *Marginella pyriformis*, *Marginella regularis*, *Myurella simplex*, *Drillia hemphilli*, *Eulima micans*, *Eulima rutila*, *Thracia curta*, *Mactra californica* (young), *Olivella boetica*, *Angulus modestus*, *Angulus variegatus*, *Angulus obtusus*, *Dentalium neoherayomum*, *Lyonsia californica*, *Mangelia angulata* and *Cadulus nitentior*.

As we go toward the channel the depth increases and the bottom is a mixture of sand and mud. Here in from 5 to 8 fathoms we find *Yoldia cooperi* (young) and *Leda taphira*.

The channel proper ranges from 8 to 14 fathoms and the bottom generally consists of coarse, yellow sand and decomposed and broken shells, among which we find both live and dead specimens of *Semele pulchra*, *Corbula luteola*, *Isapis fenestrata*, *Isapis obtusa*, *Cacum californicum*, *Cacum crebricostatum*, *Scala hindsi* and *Aesopus chrysaloidens*.

Scattered among the above species, we find many stray specimens of such shells as *Nassa perpinguis*, *Nassa cooperi*, *Nassa mendica*, *Nassa tegula*, *Calliostoma tricolor*, *Calliostoma gemmatum*, *Calliostoma caudiculatum*, and many other species which are generally found upon the low flats at low tides and which are scarcely worth mentioning as dredge species. I find that for dredging in shallow waters a dredge made of galvanized iron without any net but having a screen bottom produces as good results as any, and is much more easily manipulated.

A LIST OF SHELLS FROM NORTHEASTERN MAINE.

BY OLOF O. NYLANDER, CARIBOU, MAINE.

The following is a list of land and fresh water shells collected in the northeastern part of Maine, principally along the Aroostook and Fish Rivers.

Valuable assistance has been received from Prof. H. A. Pilsbry and Mr. Bryant Walker.

All the Pisidia, and nearly all the minute land shells have been

critically examined by Dr. V. Sterki, without whose generous assistance it would have been impossible to determine the many small species.

There is some additional material in the hands of Dr. Sterki, which when straightened out will probably add a number to the list. Most of the species are distributed over the whole area, and the names of localities are only cited in referring to species that are very local in their distribution.

In this list are included a number of species that have been cited as doubtful in Maine, and the new species recently collected by me.

LIST OF SPECIES.

- Acanthinula hurpa* Say. One specimen at Fort Kent.
Vallonia pulchella Müll. Gardens in Caribou and Presque Isle.
Vallonia excentrica Sterki. Rare, Caribou.
Polygyra albolabris Say. Not common.
Polygyra Sagii Binn. Well distributed.
Polygyra dentiferu Binn. Rather common.
Polygyra monodon Rackett. Common in some localities.
Strobilops labyrinthica Say. Plentiful in this region.
Strobilops virgo Pils. Rare (identified by Dr. V. Sterki).
Bifidaria pentodon Say. "Resemble *enruidens* more than any others I have seen" (Sterki). Near Caribou stream, Woodland.
Vertigo ventricosa Morse. Plentiful in some localities.
Vertigo ventricosa elatior Sterki. Common along streams, in Woodland, Caribou and New Sweden.
Vertigo bollesiana Morse. Rare; collected in woodland.
Vertigo Gouldii Binn. Not very abundant.
Vertigo Gouldii paradoxa Sterki. "Fine examples with the two palatal folds continuous and one angular" (Sterki). Woodland, rare.
Cochicopa lubrica Müll. Houlton, Presque Isle, Caribou, Fort Kent and Portage Lake, abundant in these localities.
Vitrina limpida Gld. Caribou and Presque Isle, found in large numbers this summer at Fort Kent.
Vitrea hammonis Strom. Fairly distributed.
Vitrea Binneyana Morse. Little Madawaska Lake and along Caribou stream in Woodland and Caribou.
Vitrea ferrea Morse. In company with *V. Binneyana*. These species are rarely found.
Comulus fulvus Mull. Everywhere.

Zonitoides arboreus Say. Common everywhere.

Zonitoides exiguus Stimp. Fairly common.

Zonitoides milium Morse. Quite rare. Woodland.

Pyramidula alternata Say. Common.

Pyramidula alternata alba. One living specimen obtained in the north of Woodland.

Pyramidula striatella Anth. Plentiful.

Pyramidula striatella? var. Shell greenish-white, animal nearly white. Can this be *Patula cronkhitei* Newe.? It is about the same size as *P. striatella*.

Pyramidula asteriscus Morse. Caribou, Woodland and Madawaska Lake. Rare.

Helicodiscus lineatus Say. Widely distributed, nowhere abundant.

Punctum pygmaeum Drap. Rare.

Sphyradium edentulum Drap. Well-distributed.

Succinea obliqua Say. Common everywhere.

Succinea oralis Gld.

Succinea arara Say. Common in wet places on lake shores and river flats, together with *S. oralis*.

Carychium exiguum Say. Very abundant in wet places everywhere.

Carychium exile Lea. Not common; found with *C. exiguum*.

Aplexa hypnorum Linné. In ditches along the roads in three different places in Woodland; specimens abundant.

Physa heterostropha Say. Common in all streams.

Physa ancillaria Say. Only seen at Square Lake Inlet.

Limnaea emarginata Say = *ampla* Mighels and *Limnaea emarginata* Mighels, Binn. From Cross Lake, Square Lake, Portage Lake, Fish River, Saint John River, at Fort Kent and Aroostook River.

This is an extremely variable species, Caribou individuals differ greatly in every locality.

Limnaea desidiosa Say. Aroostook River, Caribou stream, Salmon Brook.

Limnaea humilis Say. Common in damp places and ditches along the roads.

Planorbis trivolvis Say. Common in Barren Brook, Caribou. In Caribou Lake, Washburn, and in nearly every small lake I have seen in Aroostook county, fine specimens can be obtained.

Planorbis campanulatus Say. Cross Lake, Square Lake, Eagle Lake and Portage Lake.

Planorbis bicarinatus Say. Aroostook River, Fish River and Saint John River.

Planorbis bicarinatus aroostookensis Pils. East branch of Salmon Brook, Woodland, and Caribou stream, in Caribou.

Planorbis hirsutus Gld. Common and widely distributed.

Planorbis deflectus Say. Salmon Brook Woodland, rare; Portage Lake.

Planorbis parvus Say. Common in brooks and lakes.

Planorbis excutus Say. Portage and Square Lakes; rare.

Planorbis crista Linné, var. *cristata* Drap. Barren Brook, Caribou. This species was recorded in THE NAUTILUS, Vol. X, page 117, by Mr. Bryant Walker as *P. nautilus* Linne. Mr. A. W. Hanham, on page 130, and Geo. W. Taylor, on page 139 of the same volume use the name of *P. nautilus*. Dr. v. Sterki and Prof. H. A. Pilsbry say "it is *Planorbis crista* Linné, var. *cristatus* Drap. It occurs in northern Europe."

Ancylus rivularis Say. Caribou stream, Collin's Millpond, very large specimens.

Ancylus parallelus Hald. Cross Lake and many smaller lakes and streams.

Ancylus ? Madawaska River, New Sweden.

Ancylus tardus Say. Aroostook River, Caribou.

Ancylus borealis ? Morse. Saint John River, Fort Kent. Mr. Bryant Walker says it is identical with this rare form.

Valvata tricarinata Say. Little Madawaska River, New Sweden and the Fish River Lakes.

Valvata sincera Say. Dredged in the Fish River Lakes.

Campeloma decisum Say. Widely distributed throughout Aroostook and Fish Rivers. Four young *sinistral* shells were taken from a normal dextral female from Portage Lake.

Amnicola limosa Say. Common everywhere, and very variable in form. In my former article in THE NAUTILUS, Vol. xi., p. 10, it is called *Pomatiopsis*.

A. Cincinnatiensis Lea.

Unio complanatus Sol. Lakes and streams; common.

Margaritana margaritifera Linné. Aroostook River.

Margaritana undulata Say. Lakes and rivers.

Anodonta fragilis Lam. Generally distributed, some very large specimens in the muddy bottom of Salmon Brook Lake. Perham.

Sphærium simile Say. Generally distributed.

Sphærium striatum Lam. Fish River and Saint John River at Fort Kent.

Sphærium rhomboidem Say. Fine specimen in *Gelot Lake*, New Sweden, and all the smaller lakes of the Little Madawoska river system.

Calyculina securis Prime. Aroostook River.

Calyculina securis cardissa Prime. Square Lake and other localities.

Pisidium abdutum Hald. Common.

Pisidium adamsi Prime. Cross Lake Inlet.

Pisidium æquilaterale Prime. Portage Lake. Little Madawaska River.

Pisidium contortum Prime. Rear Mud Lake, Perham and Westmoreland.

Pisidium compressum Prime. Generally abundant.

Pisidium ferrugineum Prime. Fogelin Lake, New Sweden and many other localities.

Pisidium fallax Sterki. Aroostook River.

Pisidium fallax boreale Sterki. Aroostook River at Caribou and Little Madawaska River, New Sweden.

Pisidium milium Held. South branch Caribou Stream, Woodland and Sawyer's Brook, Castle Hill.

Pisidium medianum minutum Sterki. Hacket's Mill Brook, a tributary of Caribou Stream in the northern part of Woodland.

Pisidium pauperculum Sterki. Little Madawaska River.

Pisidium pauperculum nylanderii Sterki. Dredged in Portage Lake.

Pisidium politum Sterki. Portage Lake and Cross Lake.

Pisidium punctatum Sterki. Portage Lake, Little Madawaska River.

Pisidium roperi Sterki. Johnson Brook on the Fort Kent road and north of Perham.

Pisidium splendidulum Sterki. Barren Brook, Caribou and many other localities.

Pisidium ventricosum Prime. Barren Brook, Caribou.

Pisidium variabile Prime. Common everywhere.

Pisidium walkeri Sterki. Barren Brook, Caribou.

Pisidium walkeri mainense Sterki. Hacket's Mill Brook, Woodland and many other localities.